



CHI MEI
OPTOELECTRONICS CORP.

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Model No.: V270W1 - L01

Tentative

TFT LCD Tentative Specification

MODEL NO.: V270W1 - L01



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1. GENERAL DESCRIPTION

OVERVIEW

V270W1- L01 is a 27" TFT Liquid Crystal Display module with 14-CCFL Backlight unit and 1ch-LVDS interface. This module supports 1280 x 720 WXGA format and can display true 16.7M colors (8-bit/color).

Notice: for this model , CMO won't provide inverter after Engineering Sample Stage.

FEATURES

- Wide viewing angle (85/85/85/85)– Super MVA technology
- High brightness (500 nits)
- High contrast ratio (500:1)
- Fast response time , Tr+Tf=25 ms
(from gray to gray is 16.7 ms)
- High color saturation NTSC 75%
- 16:9 true HDTV format , WXGA (1280 x 720 pixels) resolution
- DE (Data Enable) only mode
- LVDS (Low Voltage Differential Signaling) interface
- Light Weight: 4.5 kg (module weight , typical)

APPLICATION

- TFT LCD TVs

GENERAL SPECIFICATIONS

Item	Specification	Unit	Note
Active Area	597.12(H) x 335.88 (V) (27" diagonal)	mm	(1)
Bezel Opening Area	603.22 (H) x 341.98 (V)	mm	
Driver Element	a-si TFT active matrix	-	-
Pixel Number	1280 x R.G.B. x 720	pixel	-
Pixel Pitch	0.4665 (H) x 0.4665 (V)	mm	-
Pixel Arrangement	RGB vertical stripe	-	-
Display Colors	16.7M	color	-
Display Operation Mode	Transmissive mode / Normally black	-	-
Surface Treatment	Hard coating (2H),Anti-reflective coating < less than 2 % reflection)	-	-

MECHANICAL SPECIFICATIONS

Item	Min.	Typ.	Max.	Unit	Note
Module Size	Horizontal(H)	638.55		mm	(1)
	Vertical(V)	379.8		mm	
	Depth(D)	-	36	mm	w/o inverter
Weight	-	4500		g	-

Note (1) Please refer to the attached drawings for more information of front and back outline dimensions.

2. ABSOLUTE MAXIMUM RATINGS

ABSOLUTE RATINGS OF ENVIRONMENT

Item	Symbol	Value		Unit	Note
		Min.	Max.		
Storage Temperature	T _{ST}	-20	+60	°C	(1)
Operating Ambient Temperature	T _{OP}	0	TBD	°C	(1), (2)
Shock (Non-Operating)	S _{NOP}	-	TBD	G	
Vibration (Non-Operating)	V _{NOP}	-	TBD	G	

Note (1) Temperature and relative humidity condition are as below.

(a) 90 %RH Max. (Ta ≤ 40 °C).

(b) Wet-bulb temperature should be 39 °C Max. (Ta > 40 °C).

(c) No condensation.

Note (2) The temperature of panel display area surface should be 0 °C Min. and 60 °C Max.

ELECTRICAL ABSOLUTE RATINGS

TFT LCD MODULE

Item	Symbol	Value		Unit	Note
		Min.	Max.		
Power Supply Voltage	V _{CC}	-0.3	+6.0	V	

BACKLIGHT UNIT

Item	Symbol	Value		Unit	Note
		Min.	Max.		
Lamp Voltage	V _L	-	TBD	V _{RMS}	
Lamp Current	I _L	-	TBD	MA _{RMS}	
Lamp Frequency	F _L	-	TBD	KHz	

3. ELECTRICAL CHARACTERISTICS

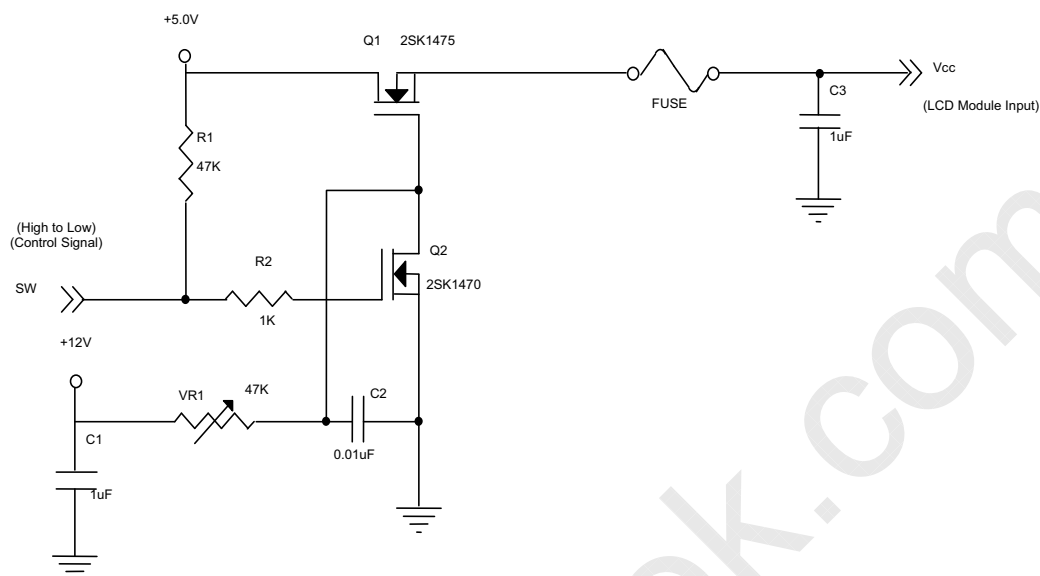
TFT LCD MODULE

Ta = 25 ± 2 °C

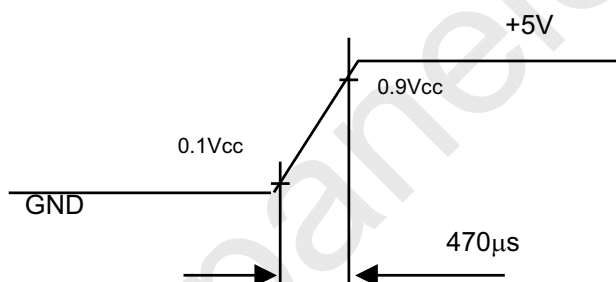
Parameter		Symbol	Value			Unit	Note
			Min.	Typ.	Max.		
Power Supply Voltage		V _{CC}	4.5	5.0	5.5	V	-
Ripple Voltage		V _{RP}	-	TBD	TBD	mV	-
Rush Current		I _{RUSH}	-	-	2.5	A	
Power Supply Current	White	I _{CC}	-	1800	TBD	mA	
	Black		-	1200	TBD	mA	
	Vertical Stripe		-	1700	TBD	mA	
LVDS differential input high threshold voltage		V _{TH}	-	-	+100	mV	
LVDS differential input low threshold voltage		V _{TL}	-100	-		mV	
LVDS common input voltage		V _{IC}	1.125	1.25	1.375	V	
Terminating Resistor		R _T	-	100	-	ohm	

Note (1) The module should be always operated within above ranges.

Note (2) Measurement Conditions:



Vcc rising time is 470μs



BACKLIGHT UNIT

Ta = 25 ± 2 °C

Parameter	Symbol	Value			Unit	Note
		Min.	Typ.	Max.		
Lamp Input Voltage	V _L	TBD	(1150)	TBD	V _{RMS}	I _L = (4.5) mA
Lamp Current	I _L	TBD	4.5	TBD	mA _{RMS}	
Lamp Turn On Voltage	V _S	-		TBD	V _{RMS}	
Operating Frequency	F _L	(57)	(62)	(67)	KHz	
Lamp Life Time	L _{BL}	50,000	-	-	Hrs	Half of initial brightness
Power Consumption	P _L	-	(72.5)	-	W	(1), I _L = (4.5) mA
Inverter Input Voltage	V _{inv}	(11.4)	12	(12.6)	V	WS only

Note (1) P_L = I_L × V_L × 14 lamps

4. INTERFACE PIN CONNECTION

TFT LCD MODULE

Pin	Name	Description
1	NC	No Connection
2	NC	No Connection
3	NC	No Connection
4	NC	No Connection
5	NC	No Connection
6	NC	No Connection
7	NC	No Connection
8	GND	Ground
9	RX3+	Positive LVDS differential data input. Channel 3
10	RX3-	Negative LVDS differential data input. Channel 3
11	RXCLK+	Positive LVDS differential clock input.
12	RXCLK-	Negative LVDS differential clock input.
13	GND	Ground
14	GND	Ground
15	RX2+	Positive LVDS differential data input. Channel 2
16	RX2-	Negative LVDS differential data input. Channel 2
17	RX1+	Positive LVDS differential data input. Channel 1
18	RX1-	Negative LVDS differential data input. Channel 1
19	RX0+	Positive LVDS differential data input. Channel 0
20	RX0-	Negative LVDS differential data input. Channel 0
21	GND	Ground
22	GND	Ground
23	GND	Ground
24	GND	Ground
25	GND	Ground
26	VCC	+5.0V power supply
27	VCC	+5.0V power supply
28	VCC	+5.0V power supply
29	VCC	+5.0V power supply
30	VCC	+5.0V power supply

Note (1) Connector Part No.: FI-X30S-HF (JAE)

Note (2) Keep the pin 1 to 7 open.

**COLOR DATA INPUT ASSIGNMENT**

The brightness of each primary color (red, green and blue) is based on the 8-bit gray scale data input for the color. The higher the binary input, the brighter the color. The table below provides the assignment of color versus data input.

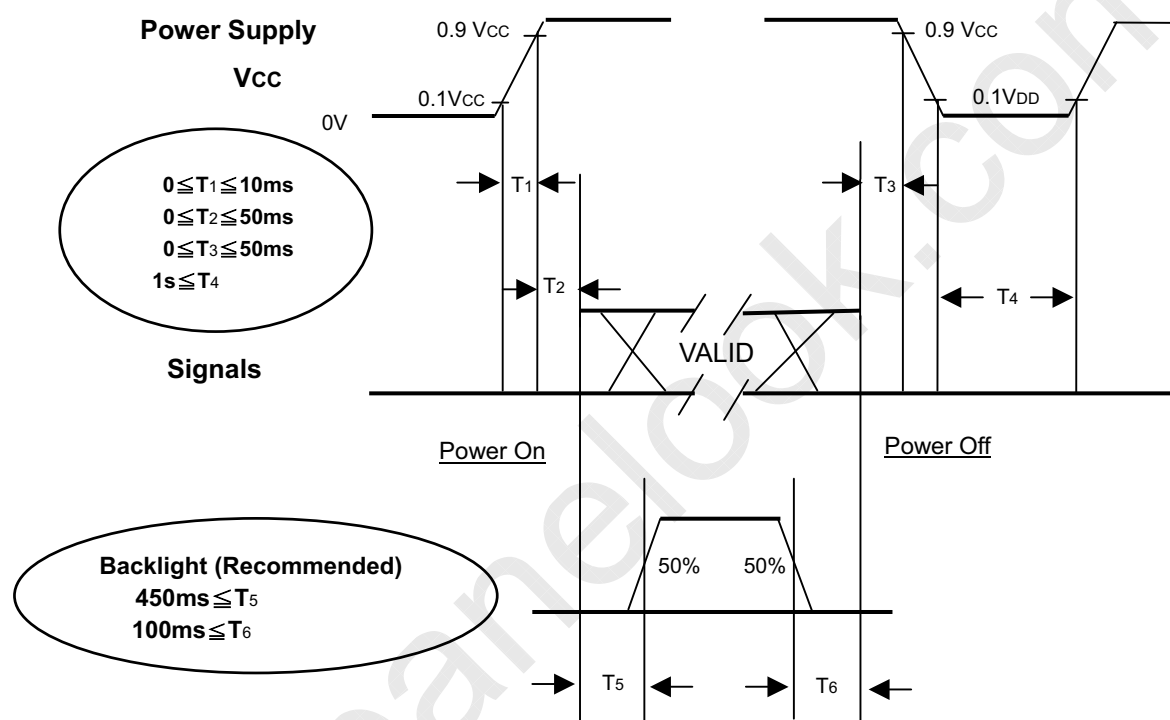
Color		Data Signal																														
		Red								Green								Blue														
R7	R6	R5	R4	R3	R2	R1	R0	R7	R6	G5	G4	G3	G2	G1	G0	R7	R6	B5	B4	B3	B2	B1	B0									
Basic Colors	Black	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Red	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Green	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Blue	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	Cyan	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	Magenta	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	Yellow	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	White	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Gray Scale Of Red	Red(0) / Dark	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Red(1)	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Red(2)	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
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	Red(253)	1	1	1	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Red(254)	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Red(255)	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Gray Scale Of Green	Green(0) / Dark	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Green(1)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Green(2)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
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	Green(253)	0	0	0	0	0	0	0	0	1	1	1	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Green(254)	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Green(255)	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Gray Scale Of Blue	Blue(0) / Dark	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Blue(1)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
	Blue(2)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	
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	Blue(253)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	0	1	0	0	
	Blue(254)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	0	0	0	
	Blue(255)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	

Note (1) 0: Low Level Voltage, 1: High Level Voltage



POWER ON/OFF SEQUENCE

To prevent a latch-up or DC operation of LCD module, the power on/off sequence should be as the diagram below.



Power ON/OFF Sequence

Note.

- (1) The supply voltage of the external system for the module input should be the same as the definition of Vcc.
- (2) Apply the lamp voltage within the LCD operation range. When the backlight turns on before the LCD operation or the LCD turns off before the backlight turns off, the display may momentarily become abnormal screen.
- (3) In case of VCC = off level, please keep the level of input signals on the low or keep a high impedance.
- (4) T4 should be measured after the module has been fully discharged between power off and on period.
- (5) Interface signal shall not be kept at high impedance when the power is on.

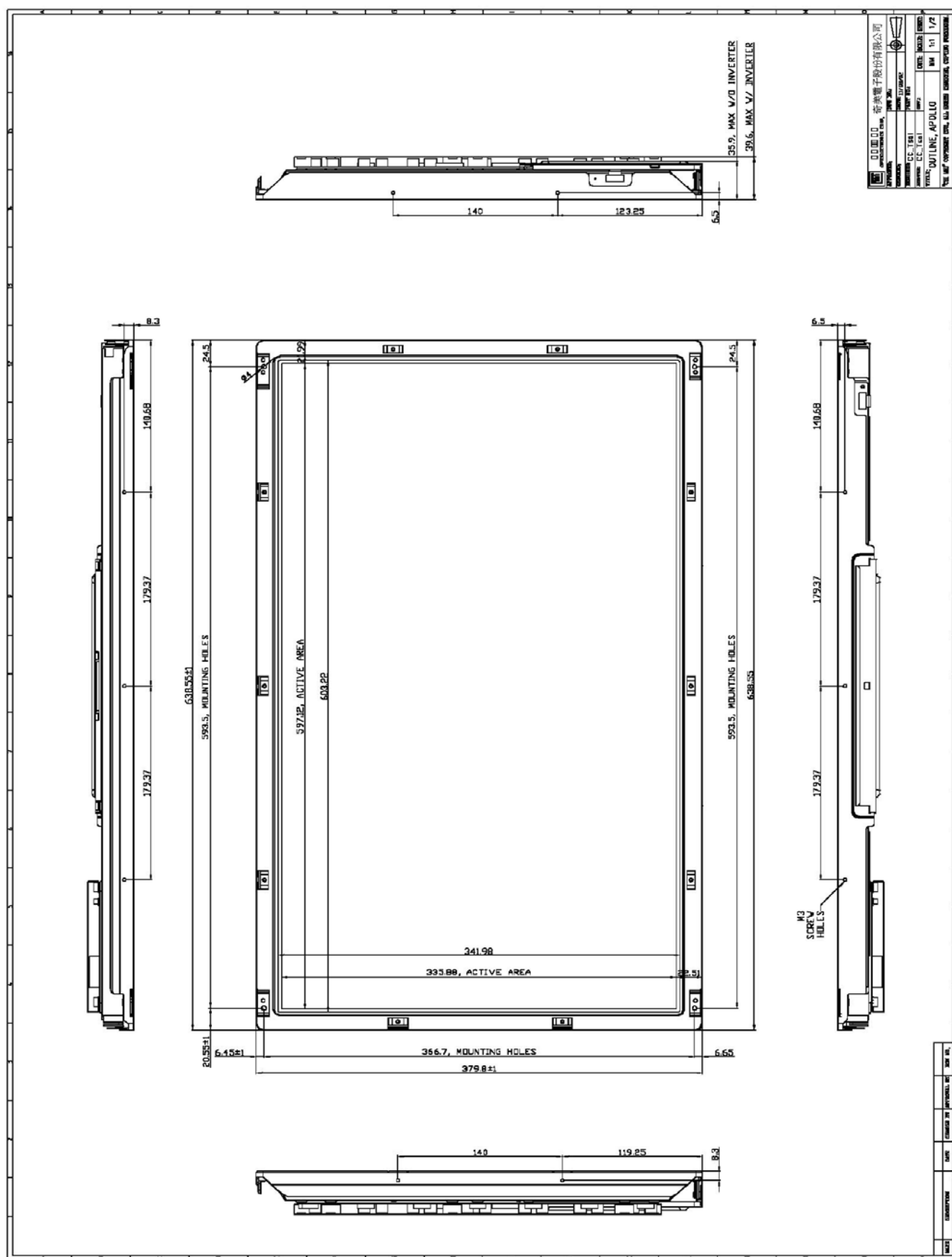
6. OPTICAL CHARACTERISTICS

CONDITIONS

Item	Symbol	Value	Unit
Ambient Temperature	Ta	25±2	°C
Ambient Humidity	Ha	50±10	%RH
Supply Voltage	V _{CC}	5.0	V
Input Signal	According to typical value in "3. ELECTRICAL CHARACTERISTICS"		
Inverter Current	I _L	4.5	mA
Inverter Driving Frequency	F _L	62	KHz
Inverter		--	

OPTICAL SPECIFICATIONS

Item		Symbol	Condition	Min.	Typ.	Max.	Unit	Note
Contrast Ratio		CR	$\theta_x=0^\circ, \theta_y=0^\circ$ Viewing Normal Angle	-	(500)	-	-	
Response Time		T _R		-	(15)	-	ms	10%-90%
		T _F		-	(10)	-	ms	
		Gray to gray			(16.6)		ms	0%-90%
Center Luminance of White		L _C		TBD	(500)	-	cd/m ²	
Average Luminance of White		L _{AVE}		TBD	(450)	-	cd/m ²	
White Variation		ΔW		-	-	1.6	-	
Cross Talk		CT		-	-	4.0	%	
Color Chromaticity	Red	R _x			TBD		-	
		R _y			TBD		-	
	Green	G _x			TBD		-	
		G _y			TBD		-	
	Blue	B _x			TBD		-	
		B _y			TBD		-	
	White	W _x			0.285		-	9, 300K
		W _y			0.293		-	
Viewing Angle	Horizontal	θ _{x+}	CR≥10		(85)	-	Deg.	No gray scale inversion
		θ _{x-}			(85)	-		
	Vertical	θ _{y+}			(85)	-		
		θ _{y-}			(85)	-		



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